IS31BL3230 8 CHANNELS CONSTANT CURRENT LED DRIVER

DESCRIPTION

The IS31BL3230 provides eight regulated current sources; each delivers up to 40mA of load current with careful selection of external sense resistors, all outputs at the IS31BL3230 may be connected in parallel to enable the current through the LED to be as high as 320mA.

Brightness can be controlled with PWM techniques. The constant current source is set with two external sense resistors.

FEATURES

- Ultra low headroom voltage
- Cost effective LED driver
- Current adjustable via external resistors
- Best Noise and Efficiency Performance
- Highly integrated design, minimal component
- 1.6µA (typ.) Shutdown current
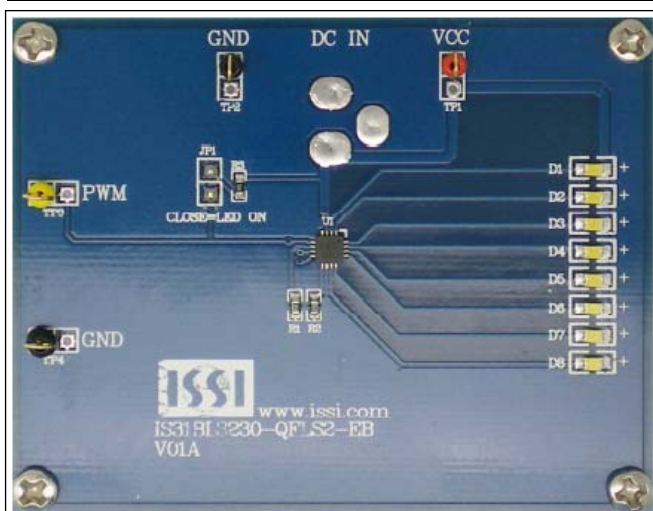- Small package QFN-16 3mm×3mm

QUICK START

Figure 1: Photo of IS31BL3230 Evaluation Board

RECOMMENDED EQUIPMENT

- 5.0V, 2A power supply

ABSOLUTE MAXIMUM RATINGS

- ≤ 5.5V power supply

Caution: Do not exceed the conditions listed above, otherwise the board will be damaged.

PROCEDURE

The IS31BL3230 evaluation board is fully assembled and tested. Follow the steps listed below to verify board operation.

Caution: Do not turn on the power supply until all connections are completed.

1) Connect the ground terminal of the power supply to the GND and the positive terminal to the VCC. Or connect the DC power to the connector (DC IN).
2) Turn on the power supply and pay attention to the supply current. If the current exceeds 300mA, please check for circuit fault.
3) Close Jumper (JP1) and white LEDs will on.

OUTPUT CURRENT SETTING

The IS31BL3230 evaluation board output current is set with two external sense resistors (R1, R2). As approximated with the following the equation:

$$R_{SET1,\,2} = 100 \times (V_{ISET1,\,2} / I_{LEDX})$$

R_2 determines the constant current output of ports D1 thru D4, R_1 determines the constant current output of ports D5 thru D8, V_{ISET} is the voltage of R_{SET} resistance, it is 1.20V typically.

SOFTWARE SUPPORT

JP1 is set to close circuit by default. If it is set to open, the onboard MCU will stop working. The MCU pin to drive the PWM pin will set to High Impedance. An external driving signal can be connected the the TP3 connecting pint to control the IS31BL3230 LED driver chip.

Refer to the datasheet for more information about how to control the IS31BL3230 LED driver.

ORDERING INFORMATION

Part No.	Temperature Range	Package
IS31BL3230-QFLS2-EB	-40°C ~ +85°C (Industrial)	QFN-16, Lead-free

Table1: Ordering Information

For pricing, delivery, and ordering information, please contacts Lumissil's analog marketing team at analog@Lumissil.com or (408) 969-6600.
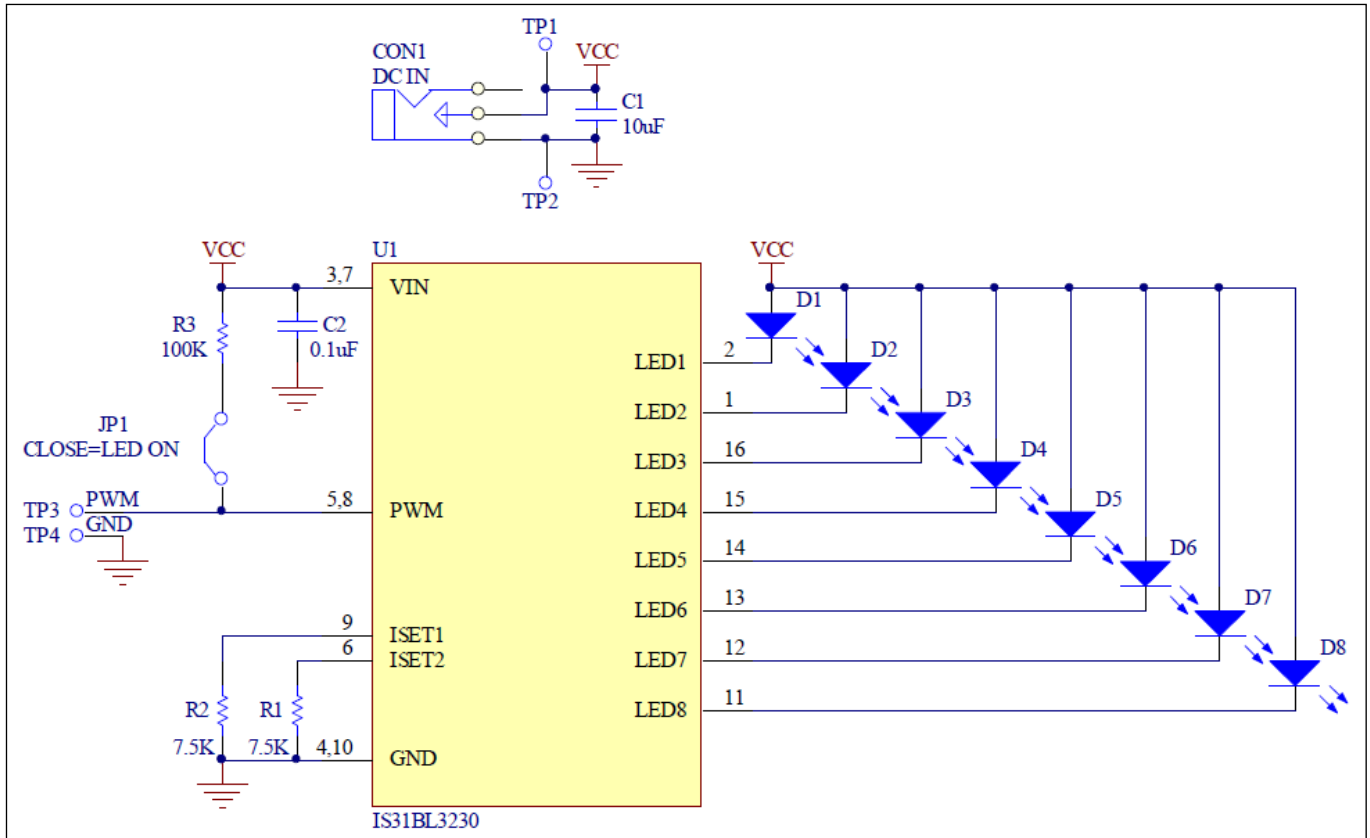

Figure 2: IS31BL3230 Application Schematic

Bill of Materials

Name	Symbol	Description	Qty	Supplier	Part No.
LED Driver	U1	8 channels LED Driver	1	Lumissil	IS31BL3230
Diode	D1~D8	Diode, LED White, SMD	8	Everlight	EHP-C04/UT01-P01/TR
Resistor	R1,R2	RES,7.5k,1/16W,±5%,SMD	2		
Resistor	R3	RES,100k,1/16W,±5%,SMD	1		
Capacitor	C1	CAP,10µF,16V,±20%,SMD	1		
Capacitor	C2	CAP,0.1µF,16V,±20%,SMD	1		

Bill of materials, refer to Figure 2 above.
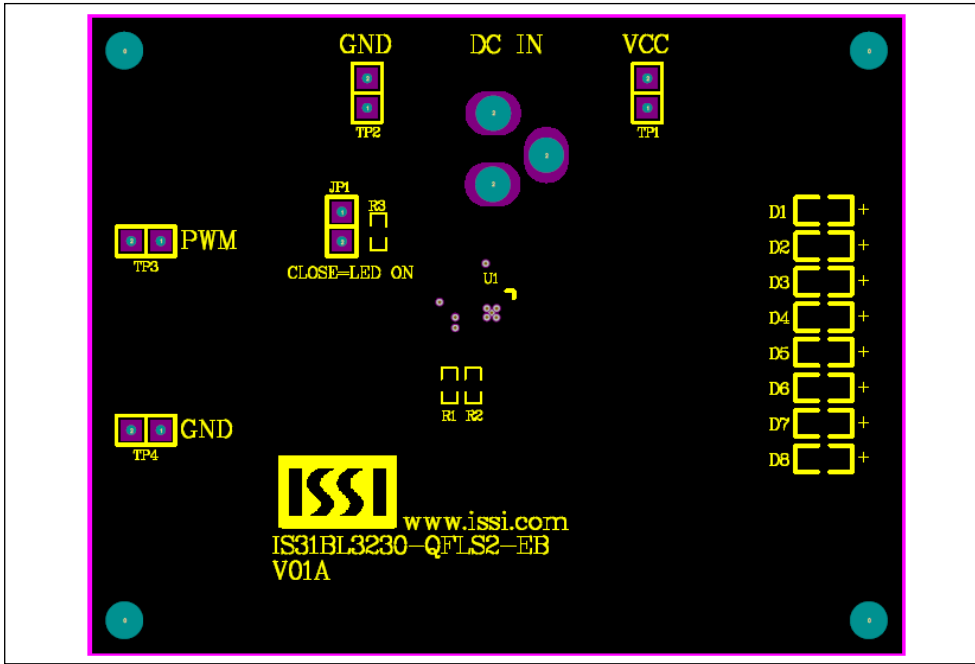
Figure 3: Board Component Placement Guide -Top Layer
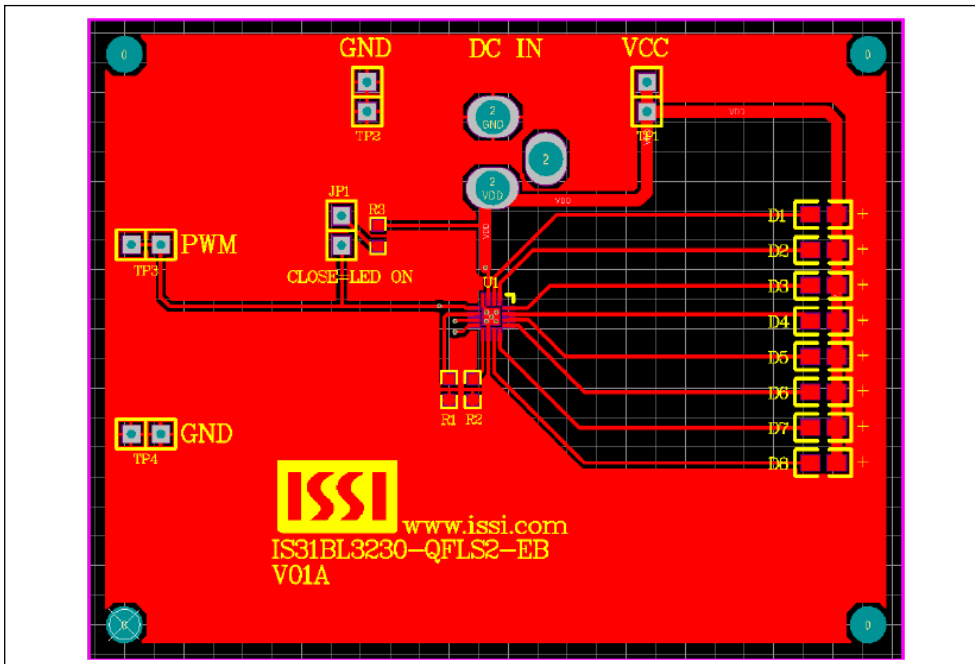
Figure 4: Board PCB Layout- Top Layer
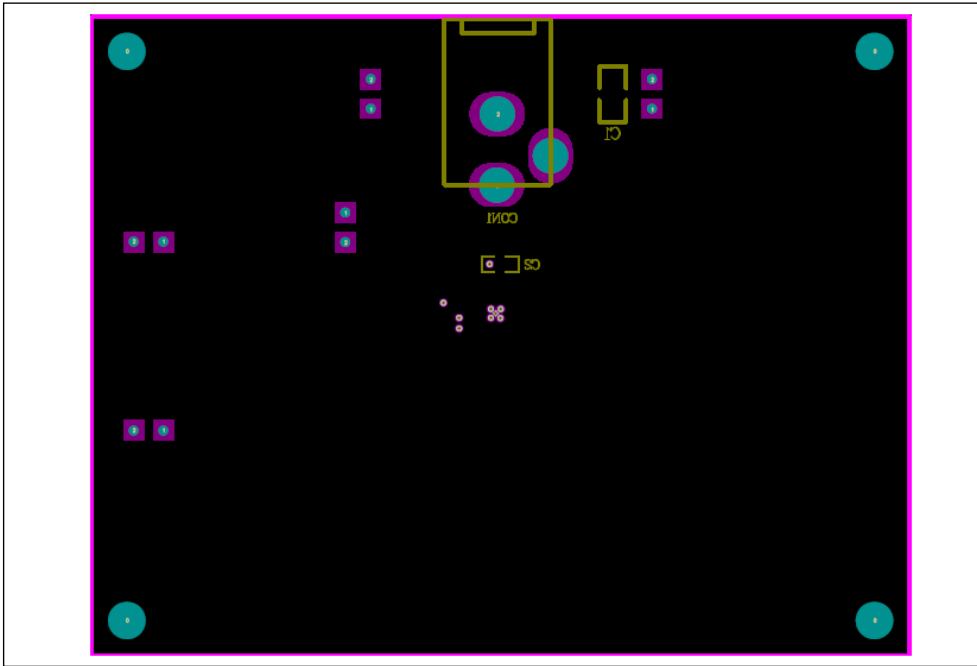
Figure 5: Board Component Placement Guide -Bottom Layer
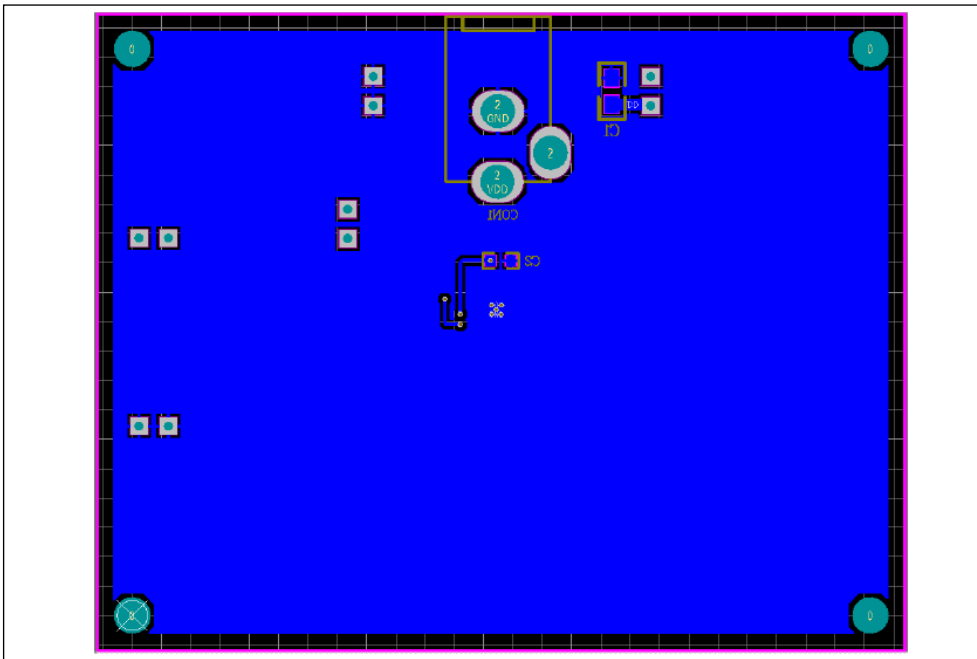
Figure 6: Board PCB Layout-Bottom Layer